Carolina, Florida, Kansas and a few from British Columbia. A valuable collection of Japanese ferns was received from the late Professor Arthur W. Stanford of the Doshisha Theological School.

The cordial coöperation and interest of President Pease has given new impetus to the study of the local flora and he has generously given many sheets of his own collecting in the New England states, the northwestern states, Europe, and Canada.

During the last decade especial attention has been given to making a thorough survey of the flora of the Connecticut River watershed in Massachusetts. We are glad to find rarities because of their value in orienting the possible relationships and origin of our flora but we are firmly convinced that we need to know much more about our common plants which determine, as it were, the physiognomic characteristics of our area. For two summers three collectors have been working in the Swift River Valley which is to be inundated for the Metropolitan Water Supply. We have also done considerable collecting in the valleys of the Westfield and Deerfield Rivers.

The Amherst College Herbarium has thus increased from 12,000 sheets to approximately 70,000 with a corresponding increase of range. A conservative estimate indicates approximately 13,000 sheets from the watershed of the Connecticut River in Massachusetts. The Herbarium is filed in metal cases and is housed in 22 Appleton Hall at Amherst College. The writer extends cordial invitation to fellow botanists and nature students to use our facilities.

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CALLITRICHE STAGNALIS IN EASTERN UNITED STATES

H. K. Svenson

While going over some material of *Callitriche* at the Gray Herbarium my attention was drawn to a specimen with unusually large leaves and fruit collected by Dr. F. W. Pennell in Waquoit, Massachusetts. The specimen, so clearly distinct from the other local material, was soon recognized by Professor Fernald as *Callitriche stagnalis* Scop., a species of wide distribution in the Old World; extending according to Hegi[1] through Europe (with the exception of the

[1] Ill. Fl. Mittel-Euro. V, 1. 197 (?1928).

extreme north), northern and central Asia, northern Africa and Macronesia. Hegelmeier[2] states that *C. stagnalis* is not known from the northern parts of Scandinavia, Scotland or Russia, and that outside of Europe there are three centers of distribution, Madeira and Teneriffe, Abyssinia, India and Ceylon.

Waquoit is a village in Falmouth on Cape Cod. A visit to the locality by Professor Fernald and myself was rewarded by finding the species abundant. The plants attain a great length in rapid water and in the Falmouth region the streamer-like growths pushed about by the current are conspicuous for a long distance. In such situations the plants do not usually have flowers or fruit but search in the quiet water of adjacent ditches or dried-out shores will reveal the fruiting plants. These are frequently only a few inches in height. In still water the plants are rather bushy, with prominent rosettes of broadly spatulate floating leaves which are much coarser than those of our other species. Submerged leaves are linear. *C. stagnalis* is resistant to frost and during the past two seasons I have noted it on Long Island in a green and thriving condition even in midwinter.

C. heterophylla is the American species closest in appearance, but from that species *C. stagnalis* is at once distinguished by coarser growth, and by much larger fruits. In *C. stagnalis* the fruits average 1.8 mm. in height and are of equal width. They are normally composed of four loosely united and strongly flattened carpels. The individual carpels average 1.7 mm. high and 0.9 mm. wide, and each has a broad semi-transparent wing on the outer margin. This broad wing is very characteristic of the species. In addition the fruit always remains green. In *C. heterophylla* the fruits are small (averaging 1 mm. high and 0.8 mm. broad) and the plump brown individual carpels are rounded on the outer face with no trace of wings.

Specimens in the herbarium of the Brooklyn Botanic Garden show that *C. stagnalis* has been a member of our flora at least as far back as 1905, and it seems to be a rather abundant plant in the area adjacent to the coast from Massachusetts to Pennsylvania. The following specimens are noted (G, representing the Gray Herbarium; B, the Herbarium of the Brooklyn Botanic Garden).

MASSACHUSETTS: Flowing water, Waquoit, *Pennell* 3381 (1914) (G); forming dense carpets in shallow pools and ditches, Quashnet R., Falmouth, *Fernald & Svenson* 952 (1928) (G); rapidly flowing water,

[2] Verhand. Bot. Ver. Brandenburg ix. 27 (1867).

Coonamessett River, Falmouth, *Fernald & Svenson* 953 (1928) (G); in sphagnum of ditch in cranberry bog, Coonamessett River, Falmouth, *Fernald & Svenson* 954 (1928) (G).

New York: Abundant in a flowing brook, Valley Stream, *Svenson* 4451 (April 5, 1931) (B, G); submerged in a small stream, Islip, *Svenson* 4452 (April 5, 1931) (B, G); covering the surface of a small brook, Richmond, *Svenson* 4493 (June 7, 1931) (B, G).

New Jersey: in brook mud, Cherry Hill, *H. Dautun* (July 22, 1905) (B), (June 7 and July 17, 1908) (B), (Sept. 19, 1909) (B); in a flowing brook, in flower and fruit, Preakness, *Svenson* 4478 (May 31, 1931) (B, G).

Pennsylvania: west branch, Indian Run, West Philadelphia, *H. B. Meredith* (May 17, 1923) (G); in a brook, West Philadelphia, *Svenson* 3486 (Nov. 24, 1929) (B, G).

Brooklyn Botanic Garden.

Callitriche stagnalis on the lower St. Lawrence.—In the preceding article Dr. Svenson records the occurrence of *Callitriche stagnalis* Scop. in the coastwise region from Cape Cod to southeastern Pennsylvania. Familiar with the large foliage and fruit of the Cape Cod plant, and remembering the dark green color of the plant, as contrasted with the paler color of our commoner species, I have, naturally, watched for *C. stagnalis* elsewhere in Atlantic North America. In September last, while collecting on the always interesting tidal flats of the lower St. Lawrence, in this case on the borders of Anse St. Vallier in County Bellechasse, Quebec, I at once recognized the familiar dark green and broad foliage and the large fruits of *C. stagnalis*. At St. Vallier the *Callitriche*, growing on gravel and mud covered at high tide and exposed at low tide (typical estuarine conditions) forms extensive prostrate mats, heavily fruiting. Its associates are the characteristic plants of the St. Lawrence estuary, such as *Butomus umbellatus* L., *Leersia oryzoides* (L.) Sw. forma *glabra* A. A. Eaton, *Cyperus rivularis* Kunth, *Scirpus Smithii* Gray var. *levisetus* Fassett, *Eriocaulon Parkeri* Robinson, *Tillaca aquatica* L., *Elatine americana* (Pursh) Arn., *Epilobium ecomosum* (Fassett) Fern.,[1] *Gentiana Victorinii* Fern. and a puzzling aggregation of estuarine variations in *Bidens*, *Isoetes* and other genera awaiting study.—M. L. Fernald.

[1] Epilobium **ecomosum** (Fassett), comb. nov. *E. glandulosum*, var. *ecomosum* Fassett, Rhodora, xxvi. 48 (1924).

When Dr. Fassett described this plant he had only two collections and he separated it from *Epilobium glandulosum* Lehm., var. *adenocaulon* (Haussk.) Fern. merely by its ecomose seeds, itself a very remarkable character in a genus characterized by comose